

Modular Training Standards

**Install and Maintain  
Underground Ventilation  
Equipment**

Program #770010

General Services Specialties Group  
Module U0082

# **Install and Maintain Underground Ventilation Equipment**

Program #770010

General Services Specialties Group  
Module U0082

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This document is the property of the trainee/  
employee named inside and represents the official  
record of his/her training.

## INSTALL AND MAINTAIN UNDERGROUND VENTILATION EQUIPMENT

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### TRAINING UNIT

#### TRAINING TITLE UNIT

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**AREAS OF  
COMPETENCY**

**COMPETENCY ANALYSIS PROFILE  
INSTALL AND MAINTAIN UNDERGROUND VENTILATION EQUIPMENT  
ON-THE-JOB TRAINING STANDARDS  
-SKILLS-**

<b>INSTALL AND MAINTAIN UNDERGROUND VENTILATION EQUIPMENT</b>  <b>U0082.0</b>	Identify and respond to workplace hazards.  0082.01	Inspect and scale workplace.  0082.02	Operate lifting mechanism(s).  0082.03	Install vent supports.  0082.04	Install and/or maintain ventilation equipment.  0082.05
	Install ventilation controls.  0082.06	Maintain ventilation equipment.  0082.07			

## INSTALL AND MAINTAIN UNDERGROUND VENTILATION EQUIPMENT

### PREFACE

This training document was developed by the Program Development and Standards Unit of the Ministry of Training, Colleges and Universities, in consultation with representatives from the Underground Hard Rock Mining industry. These Training Standards are intended to be used by trainee, trainers/instructors and companies as a "blueprint" for training or as a prerequisite for government accreditation/certification. While this training document is intended as guidelines for training, all issues might not apply in all operations.

A Basic Underground Hard Rock Miner ( entry level) is a worker who has achieved accreditation in the entire Common Core Program # 770010. The Mining Tripartite Committee recommends that the employer must provide training in the entire common core for the Basic Underground Hard Rock Miner Training Program, to the worker, within the first year of employment. The prerequisite common core and specialty modules related to a specialty module must be taken before training in the specialty module, e.g Jumbo Drill *NOTE: To be trained and accredited in this module, the prerequisite modules from Program #770010 are U0000, U0001, U0002, U0004, U0006 and U0011. The other prerequisite modules, where applicable, are U0005, U0007, U0014, U0015 and U0082.* Employers have a responsibility to train workers for the work to be done.

The first three modules of Program #770010 - U0000, U0001 and U0002 are prerequisites to all other modules for the program. They must be completed before any other modules can be done and before the employee can be permitted to work underground.

Under the Occupational Health & Safety Act - R.R.O. 1990 Regulation 854, 11.3 there is an allowance for the recognition of equivalent training from other jurisdictions to Ontario training. Based on a comparison of the two programs, the Mining Tripartite Committee has deemed Quebec's Formation Modulaire du Travailleur Minier (FMTM) program to be equivalent to Ontario's Program #770010 Common Core except for specific mine orientation (U0000, Follow Surface and Underground Induction Procedures) and secondary blasting (U0006, Blast Rock). Employers should contact their local apprenticeship office for details about the requirements associated with these equivalencies.

New trainees or experienced miners must obtain accreditation in the same way. Each must demonstrate the skills specified in each Performance Objective to the described minimal acceptable standard as prescribed in each module. These demonstrations must be administered in an operating mine by a trainer designated by the company who shall follow the Performance Demonstration Guidelines approved by the Mining Tripartite Committee.

The care and maintenance of this book is the joint responsibility of the trainee and the employer. The Training Standards were developed specifically for documenting the trainee's acquisition of skills.

## INSTALL AND MAINTAIN UNDERGROUND VENTILATION EQUIPMENT

### PREFACE - Cont'd

Areas of the Basic Underground Hard Rock Common Core including mechanical staging, drilling, rock bolting, and mucking may infringe on some speciality modules for purposes of safety and technological changes. However, accreditation in these areas of the Common Core is not intended to replace accreditation in the speciality modules.

Throughout the document the term "including" is often used. "Including" means: one or more of the items listed, but not limited to those items included in the list.

**N.B. Re:** Lock out and /or tag, where it is practical or possible to lock, then locking and tagging should be the norm.

### NOTICE/DECLARATION FOR COLLECTION OF PERSONAL INFORMATION

1. This information is collected under the authority of the Order-In-Council Number 701/85.
2. The information is collected for the purpose of administering this modular training program within the Province of Ontario.
3. Questions regarding collection and use of this information may be directed to:

Director of Apprenticeship  
Workplace Training Branch  
Ministry of Training, Colleges and Universities  
900 Bay Street  
17th Floor  
Toronto, Ontario  
M7A 1L2  
(416) 326-5605

## INSTALL AND MAINTAIN UNDERGROUND VENTILATION EQUIPMENT

### IMPORTANT DIRECTIONS TO TRAINERS

Trainers instructing workers in the specialty modules for Program 770010 must meet the Trainer Qualification and Criteria Guidelines for Program #770010. They must be accredited in the Basic Common Core Underground Hard Rock program #770010 and the specialty module they will be instructing. Contact your local apprenticeship office for a copy of the Trainer Qualification and Criteria Guidelines.

The Training Standards identify skills required for this occupation and its related training program.

These Training Standards have been written in concise statements which describe how well a trainee must perform each skill in order to become competent.

In using these Training Standards, trainers will be able to ensure that the trainee is developing skills detailed for the occupation.

Trainers and trainees are required to sign off and date the skills following each successful acquisition.

Employers participating in this training program will be designated as the Signing Authority and are required to attest to successful achievement in the space provided at the end of each unit.

### IMPORTANT DIRECTIONS TO THE TRAINEE

Trainee

1. It is the responsibility of the trainee to inform the local Apprenticeship Client Services office regarding the following changes:
  - change of trainee name or address;
  - transfer to a new employer;
2. Training Reports must be signed for modular trainees by a Ministry of Training, Colleges and Universities designated Signing Authority and forwarded to a local Apprenticeship Client Services office.
3. At the completion of training, the Trainee Completion Form must be completed and signed off by the Signing Authority and submitted to local Apprenticeship Client Services office.

## **INSTALL AND MAINTAIN UNDERGROUND VENTILATION EQUIPMENT**

### **UNDERGROUND HARD ROCK MINING SPECIALITY MODULES LISTING BY GROUPS**

#### **GROUP 1    PRODUCTION SPECIALTIES**

U0051 Perform Non-Mechanized Room and Pillar Mining  
U0052 Perform Mechanized Room and Pillar Mining  
U0053 Perform Shrinkage Mining  
U0054 Perform Regular Cut and Fill Mining  
U0055a Perform Mechanical Cut and Fill Mining-  
Non Captive Stope  
U0055b Perform Mechanical Cut and Fill Mining-  
Captive Stope  
U0056 Perform Square Set Mining  
U0057 Perform Under Cut and Fill Mining  
U0058 Perform Non-Mechanized Bulk Mining  
U0059 Perform Mechanized Bulk Mining

#### **GROUP 3    HAULAGE SPECIALTIES**

U0015 Maintain Tire and Wheel Assemblies  
U0017 Operate Scram Drift  
U0019 Perform Track Haulage- Operate  
U/G haulage Train Remote Control  
U0020 Perform Trackless-Haulage Operate  
Scoop Tram-Remote Control  
U0023 Operate Front-End Loader  
U0067 Perform Track Haulage- Operate  
U/G Haulage Train

#### **GROUP 2    DEVELOPMENT SPECIALTIES**

U0016 Perform Non Mobile-Trackless Drifting  
U0060 Perform Mobile Drifting  
U0061 Perform Non-Mobile Track Drifting  
U0062 Perform Conventional Untimbered Raising  
U0063 Perform Conventional Timbered Raising  
U0064 Perform Mechanized Raising  
U0065 Perform Drop/Inverse Raising Mechanized/NonMechanized  
U0066a Perform Shaft Sinking- Timber Lining Installation  
U0066b Perform Shaft Sinking- Concrete Lining Placement  
U0066c Perform Shaft Mucking  
U0066d Perform Shaft Drilling and Blasting

#### **GROUP 4    DRILLING AND BLASTING SPECIALTIES**

U0069 Operate Non-Mechanized Long Hole Drill  
U0070 Operate In-The-Hole Drilling  
U0072 Operate Raise Bore Drill  
U0089 Operate Mechanized Jumbo Drill  
U0090 Operate Mechanized Long Hole Drill  
U0092 Perform Mobile Bulk Blasting  
U0093 Perform Non-Mobile Bulk Blasting



## INSTALL AND MAINTAIN UNDERGROUND VENTILATION EQUIPMENT

### GROUP 3    **HAULAGE SPECIALTIES** - cont'd

U0068a Perform Trackless Haulage-Operate Scoop Tram Draw Point  
U0068b Perform Trackless Haulage-Operate Scoop Tram Production/Development  
U0091 Operate Haulage Truck

### GROUP 5    **GENERAL SERVICES**

U0013 Operate Lifting Mechanism(s)  
U0014 Operate Forklift  
U0018 Operate Mechanized Rock Bolter  
U0021 Operate Bulldozer  
U0022 Operate Grader  
U0024 Operate Utility Vehicle  
U0025 Operate Mechanized Muck Conditioner  
U0026 Operate Mechanized Cable Bolter  
U0027 Operate Non-Mechanized Cable Bolter  
U0028 Operate Scissor Lift  
U0029 Operate Rock Breaker  
U0033 Operate Oxyacetylene Cutting Equipment  
U0035 Operate Backhoe  
U0036 Operate Overhead Crane  
U0074 Operate Mine Hoist- Friction or Drum  
U0075 Install and Maintain Track System  
U0076 Perform Fill Placement  
U0077 Operate Underground Crusher  
U0078 Operate Underground (Filter) Decantation System  
U0079 Operate Conveyor  
U0080 Install and Maintain Underground Pipe System  
U0081 Operate Tipple  
U0082 Install and Maintain Underground Ventilation Equipment

### GROUP 6    **SHAFT SERVICES**

U0083 Operate Cage  
U0084 Perform Shaft Maintenance  
U0088 Operate Skip

### GROUP 7    **CONSTRUCTION SERVICES**

U0085a Construct Concrete Installations  
U0085b Construct Timber Installations  
U0085c Construct Steel Installations  
U0086 Perform Shotcreting

## INSTALL AND MAINTAIN UNDERGROUND VENTILATION EQUIPMENT

### TRAINEE COMPLETION FORM

Trainee Name

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Print

\_\_\_\_\_

Signature

Social Insurance Number

The Training Unit, when completed, should be Signed off by Trainer/ Signing Authority below. Submit required documentation to your local Apprenticeship Client Services office. Any supporting documentation should also be attached.

Employer Name:

Address:

Telephone:

Signing Authority:

\_\_\_\_\_

Signature

### TRAINING UNIT COMPLETION FORM

**TRAINING TITLE  
UNIT**

**SIGNING AUTHORITY**

U0082.0      Install and Maintain Underground Ventilation  
Equipment

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## INSTALL AND MAINTAIN UNDERGROUND VENTILATION EQUIPMENT

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### U0082.0      INSTALL AND MAINTAIN UNDERGROUND VENTILATION EQUIPMENT

#### GENERAL PERFORMANCE OBJECTIVE

Install and maintain underground ventilation equipment, by identifying and responding to workplace hazards; inspecting and scaling workplace; operating lifting mechanism(s); installing vent supports; installing and/or maintaining ventilation equipment; installing ventilation controls; and maintaining ventilation equipment according to government legislation, company standards and manufacture specifications.

*NOTE: To be trained and accredited in this module, the prerequisite modules from Program #770010 are U0000, U0001, U0002, U0011 and U0013. The other prerequisite modules, where applicable are U0004, U0024 or U0028, U0033, U0085a, U0085b, U0085c and U0086.*

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#### PERFORMANCE OBJECTIVES

Trainer's Name (Print)

Trainee's Name (Print)

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#### SKILLS

- 0082.01      Identify and respond to workplace hazards, including: ground conditions, ventilation, open holes above/ below, and housekeeping, by isolating area; and repairing and/or reporting deficiencies according to government legislation and company standards.

Date Completed

Trainer's Signature

Trainee's Signature

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- 0082.02      Inspect and scale workplace, by selecting scaling bar for the specific job based on type, size and condition; fastening and connecting hoses; washing down area; setting water flow to control dust; performing scaling procedures; checking ventilation flow; and taking corrective action and/or reporting according to government legislation and company standards.

Date Completed

Trainer's Signature

Trainee's Signature

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## INSTALL AND MAINTAIN UNDERGROUND VENTILATION EQUIPMENT

### **U0082.0      INSTALL AND MAINTAIN UNDERGROUND VENTILATION EQUIPMENT - cont'd**

0082.03      Operate lifting mechanism(s), including: tugger hoists, chain blocks, block and tackles, come-a-longs, and other mechanized lifting equipment, by completing pre-operational checks; starting equipment; raising and lowering materials; loading/unloading materials; using pre-determined signals; operating audio and/or visual communication systems; stopping equipment; completing post-operational checks; locking out and/or tagging equipment; and repairing and/or reporting deficiencies according to government legislation, company standards and manufacturer specifications.

Date Completed

Trainer's Signature

Trainee's Signature

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0082.04      Install vent supports, including: anchor bolts, chains, messenger cables, and hangers; using drilling equipment, including: stoper and jack-leg drills; locking out and/or tagging; and repairing and/or reporting deficiencies according to government legislation, company standards and manufacturer specifications.

Date Completed

Trainer's Signature

Trainee's Signature

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0082.05      Install and/or maintain ventilation equipment, including: auxiliary ventilation fans and duct tubing, **using** tools and equipment, including: hand tools, bars and clamps, by installing materials, including: fittings, bands, chains, fans, guards, silencers, hangers, ventilation duct/ tubing; lifting and moving materials; using fall protection, including: fall arrest or travel restraint systems; locking out and/or tagging; and repairing and/or reporting deficiencies according to government legislation, company standards and manufacturer specifications.

Date Completed

Trainer's Signature

Trainee's Signature

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## INSTALL AND MAINTAIN UNDERGROUND VENTILATION EQUIPMENT

### **U0082.0      INSTALL AND MAINTAIN UNDERGROUND VENTILATION EQUIPMENT- cont'd**

- 0082.06      Install ventilation controls, including: temporary doors and stopping, as per engineering layout, by placing and adjusting materials, including: air flow regulators, timber, blocks, brattice, doors and hardware; locking out and/or tagging; and repairing and/or reporting deficiencies according to government legislation, company standards and manufacturer specifications.

Date Completed

Trainer's Signature

Trainee's Signature

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- 0082.07      Maintain ventilation equipment, by monitoring air flow and adjusting to specified volumes; inspecting/adjusting controls, including: regulators, doors and fans; replacing ventilation equipment, including: duct tubing, vent tubing, and hangers; **using tools and equipment, including: hand tools, bars and clamps;** locking out and/or tagging; and repairing and/or reporting according to government legislation, company standards and manufacturer specifications.

Date Completed

Trainer's Signature

Trainee's Signature

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Employer's Name

Employer's Signature

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